REMARKS

Claims 1-6 are all the claims pending in the application.

I. Response to Claim Rejection under 35 U.S.C. § 102

In paragraph 2 of the Office Action, claims 1 and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Deevi et al (U.S. 5,498,855).

In response to the Amendment filed May 4, 2008 and the argument presented therein that Deevi does not disclose that the heater, the electrodes and the binder are all made essentially of silicon carbide, the Examiner takes the position that Deevi shows that heater elements (22) and its electrode portion (21) are made of silicon carbide in the amount of 80 vol %. Specifically, the Examiner states that such percentage of silicon carbide makes up the basic structure of the heater device with other variously disclosed elements including the binder (also made of whiskers of SiC) are provided to improve the electrical conductivity of the heater device but without affecting the disclosed basic material of the silicon carbide heater device.

The Examiner also states that Deevi clearly discloses that the hub (21) and the tips of the heater elements (22) act as the electrical terminals (see column 9, lines 6-23), and this teaching clearly meets the recited heater and electrodes that are integrally constructed and joined with the binder.

Applicants respectfully traverse the rejection and submit that Deevi does not identically disclose the present invention with sufficient specificity as required for anticipation under 35 U.S.C. § 102.

Specifically, Deevi does not disclose an embodiment which includes all elements of the present claims. Deevi teaches an electrically powered ceramic composite heater useful for

devices such as a cigarette lighter. Figure 4 of Deevi et al, for example, shows a heating element 20 with a plurality of spaced apart, rectilinear heating blades 22 extending from the hub 21. Column 7, lines 31-33. At column 9, lines 7-10, it is disclosed that the heater element 20 is unitarily formed from an electrically conductive ceramic composition and the tips of the free ends of the blades remote from the hub 21 can act as the positive electrical contacts for the heater and the hub can act as the common negative electrical contact. Further, Deevi et al also describes various ceramic materials, including silicon carbide, and various desirable properties of such materials. See Tables 2-7.

More specifically with respect to the ceramic materials, Deevi teaches that the hub and blades comprise a monolithic electrically resistant heating ceramic material. The ceramic material is said to comprise a semiconductive metal compound A and an electrically conductive metal compound B. Compound A can comprise one or more compounds selected from the group consisting of Si_3N_4, Al_2O_3, ZrO_2, SiC and B_4C and compound B can comprise one or more compounds selected from the group consisting of TiC, $MoSi_2$, Ti_5Si_3, $ZrSi_2$, ZrB_2 and TiB_2. Compound A can be present in an amount of 45-80 vol% and compound B can be present in an amount of 20-55 vol%. However, Deevi does not disclose a specific embodiment wherein the ceramic material is made of SiC as compound A in an amount of 80 vol%. In order to arrive at a ceramic material comprising 80 vol%, one would have to pick and choose among the listed compounds for A and also among the range of volume percent of 45-80 vol %. Such picking and choosing is not permissible in an anticipation rejection. Additionally, the number of potential combinations of compounds A, B and the volume percentage range of each is in the hundreds, perhaps thousands, and Deevi does not express a clear preference for SiC as compound A in the range of 80 vol%.

Moreover, Deevi specifically teaches that the ceramic material can be Si_3N_4 based and include $MoSi_2$, SiC and/or TiC additions. More specifically, Deevi discloses that the ceramic material can include in volume percent of 55 to 80% Si_3N_4, up to 35% $MoSi_2$, **up to 20% SiC** and up to 45% TiC or in volume % of 55 to 65% Si_3N_4, 15 to 25% $MoSi_2$ and **5 to 15% SiC**. See column 4, lines 12-17. See also Table 5 which shows embodiments having 10, 12 and 15 volume % of SiC. Thus, it is clear that the ceramic material of Deevi primarily consists of Si_3N_4 and Deevi does not disclose a ceramic material made of silicon carbide in the amount of 80 vol % as stated by the Examiner. Accordingly, Deevi does not disclose the element of the heater and the electrodes being integrally constructed with the use of a binder made of a material consisting essentially of silicon carbide. For at least this reason the invention of present claim 1 is not anticipated by Deevi. Since claim 6, depends from claim 1, claim 6 would be distinguished for at least the same reason.

In view of the above, Applicants respectfully request withdrawal of the §102 anticipation rejection based on Deevi.

II. Response to Claim Rejection under 35 U.S.C. § 103

In paragraph 4 of the Office Action, claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kano et al (U. S. 6,384,383) or Murakami (U.S. 5,462,603) in view of Deevi et al (U. S. 5,498,855).

Applicants respectfully traverse the rejection.

The Examiner asserts that Kano et al discloses a susceptor and Murakami discloses a reflection plate and an insulation plate and the combination of these references with Deevi and Divakar leads to the present invention.

However, Deevi does not disclose all elements of the present claims for the reasons set forth above. Specifically, Deevi does not teach or suggest a ceramic material having a 80 vol% of SiC. Deevi actually teaches that the ceramic material can be Si_3N_4 based and include $MoSi_2$, SiC and/or TiC additions. More specifically, Deevi discloses that the ceramic material can include in volume percent of 55 to 80% Si_3N_4, up to 35% $MoSi_2$, **up to 20% SiC** and up to 45% TiC or in volume % of 55 to 65% Si_3N_4, 15 to 25% $MoSi_2$ and **5 to 15% SiC**. See column 4, lines 12-17. See also Table 5 which shows embodiments having 10, 12 and 15 volume % of SiC. Thus, one of ordinary skill in the art would consider that the ceramic material of Deevi primarily consists of Si_3N_4.. Accordingly, it is respectfully submitted that the Examiner's position is based on the incorrect assertion that Deevi teaches a ceramic material having a 80 vol% of SiC. Further, there is no apparent reason to modify or combine the disclosure of Deevi to arrive at a ceramic material made of silicon carbide in the amount of 80 vol %.

Additionally, Divakar fails to disclose the joining material and also fails to disclose a method of eliminating the difference of heat conductivity (temperature difference) by using the joining material.

In view of the above, even if the cited references could somehow have been combined, the present invention would not have been achieved. For at least this reason the present invention is not rendered obvious by the cited references, whether taken alone or in combination.

Further, the present invention provides unexpectedly superior results since the heater and the electrodes respectively consist essentially of silicon carbide and the heater and the electrodes are integrally constructed with the use of a binder consisting essentially of silicon carbide such that all heat conductivity of the heater, the electrodes and the binder is the same, which leads to improved purity and thermal uniformity.

In general, if the thermal expansion rate of each part is different, cracks can develop as a result of thermal stress due to temperature differences between the parts. However, in the present invention, the heater and the electrodes respectively consist essentially of silicon carbide and the heater and the electrodes are integrally constructed with the use of a binder consisting essentially of silicone carbide such that all heat conductivity of the heater, the electrodes an the heater is the same and thermal stress between the heater and the electrodes is reduced so that cracks do not occur in the present invention. On the other hand, the heater and the electrodes are molded by the different materials in Deevi and the expansion rate of the heater and the electrodes is different so that cracks can occur in Deevi. Thus, the present invention provides unexpectedly superior results. For this additional reason the present invention is patentable over the cited references.

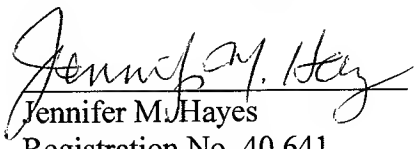
Accordingly, Applicants respectfully request withdrawal of the §103 rejection.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Jennifer M. Hayes
Registration No. 40,641

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: July 30, 2008